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(54) **Dynamic assignment of ack resource in a wireless communication system**

(57) Techniques for dynamically assigning acknowledgement (ACK) resource to a user equipment (UE) are described. For dynamic scheduling, a scheduling message may be used to send scheduling information for a single transmission of data. For semi-persistent scheduling, a scheduling message may be used to send a semi-persistent assignment for multiple transmissions of data. In an aspect, at least one field of a scheduling message, which is normally used to carry scheduling information for dynamic scheduling, may be re-used to carry an ACK resource assignment for semi-persistent scheduling. In one design, a UE may receive a scheduling message carrying a semi-persistent assignment and may obtain an assignment of ACK resource from the at least one field of the scheduling message. The UE may receive a transmission of data sent in accordance with the semi-persistent assignment, determine ACK information for the transmission of data, and send the ACK information with the ACK resource.

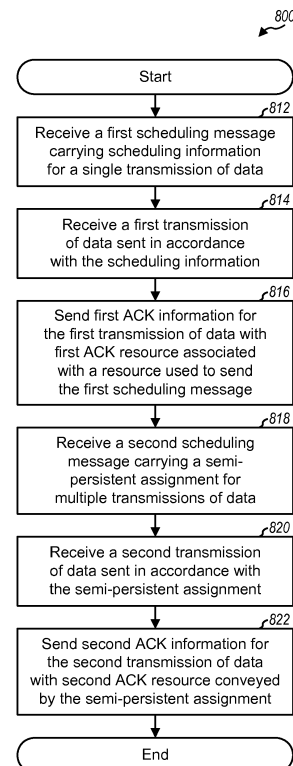


FIG. 8

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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2006/205414 A1 (TEAGUE EDWARD H [US]) 14 September 2006 (2006-09-14)	1,6,9, 12,15	INV. H04L5/00
Y	* abstract * * paragraph [0006] - paragraph [0008] * * paragraph [0010] - paragraph [0012] * * paragraph [0037] - paragraph [0039] * * paragraph [0045] - paragraph [0048] * * paragraph [0053] * * paragraph [0060] - paragraph [0062] *	3,4,7,8, 10,11, 13,14	H04L1/16 H04W72/00 ADD. H04L25/03
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Y	US 2007/097981 A1 (PAPASAKELLARIOU ARIS [US]) 3 May 2007 (2007-05-03) * abstract; figures 8-10 * * paragraph [0026] - paragraph [0033] * * paragraph [0047] - paragraph [0050] * * paragraph [0053] * * paragraph [0056] - paragraph [0057] * * paragraph [0064] - paragraph [0065] * * paragraph [0072] *	3,7,10, 13	

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 10 July 2013	Examiner Faber, Thomas
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.02 (P04CC01)



EUROPEAN SEARCH REPORT

Application Number
EP 13 15 8370

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2008/024788 A2 (QUALCOMM INC [US]; MALLADI DURGA PRASAD [US]; DAMNJANOVIC ALEKSANDAR) 28 February 2008 (2008-02-28) * abstract; figures 7,22-25 * * paragraph [0006] - paragraph [0007] * * paragraph [0029] - paragraph [0039] * * paragraph [0045] * * paragraph [0050] - paragraph [0051] * * paragraph [0055] - paragraph [0071] * * paragraph [0089] - paragraph [0093] * -----	4,8,11,14	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		10 July 2013	Faber, Thomas
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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EPO FORM 1503 03.02 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1, 2, 5, 15

Configured ACK resources (for physical uplink control channel).

2. claims: 1, 3, 6, 7, 9, 10, 12, 13, 15

Using a field of a scheduling message.

3. claims: 1, 4, 6, 8, 9, 11, 12, 14, 15

Using a cell radio network temporary identifier (C-RNTI).

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-07-2013

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